

## **Remarks**

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

The courtesy extended by the Examiner to the Applicants' representatives at the Interview on August 22, 2006, and the Examiner's suggestions made at the Interview are greatly appreciated.

The specification and abstract have been amended to make minor changes to improve its readability, particularly to reflect the fact that "polymer electrolyte membrane" and "proton exchange membrane" are interchangeable terms known to one of ordinary skill in the art.

Independent claims 1 and 15 have been amended to better define the invention, particularly by reciting a filter with at least one catalyst. New claims 26-29 have been added to further define the catalyst. Support for the amended claims and for new claims 26-29 can be found in the paragraph beginning on page 9 at line 26.

Claims 17, 20-23 have been canceled. New claims 30-32 have been added to better define the invention. Support for claims 30-32 can be found on page 8, line 31 to page 9, line 4, and page 6 lines 24-28.

No new matter has been added. Consideration of claims 1-32 is respectfully requested.

### **Rejections under 35 U.S.C. § 103(a)**

Claims 1-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Derflinger *et al.*, U.S. Patent No. 6,723,460, heretofore Derflinger, in view of Paronen *et al.*, U.S. Patent No. 6,630,518, heretofore Paronen.

The Examiner asserts that Derflinger discloses all of the aspects of the present invention including a fuel cell system that utilizes an ion exchanger unit to purify fuel before it reaches a fuel cell. However, Derflinger is said to lack disclosure regarding the type of material employed in the ion exchanger, its location in the system, its physical form, and the electrical conductivity sensor. The Examiner asserts that it would have been obvious for one

of ordinary skill in the art to combine the teachings of Paronen with Derflinger in order to construct the presently claimed invention.

Independent claims 1 and 15 have been amended to recite that the “perfluorinated sulfonic acid polymer ... includes at least one catalyst.” Neither the Derflinger nor Paronen reference discloses using a catalyst in the filter medium. Newly added claims 26-29 are presented to further define the catalysts used in amended claims 1 and 15.

Independent claims 1 and 15 have also been amended to improve the readability of the claims by changing the term “polymer exchange membrane” to the more accepted term “polymer electrolyte membrane.”

Dependent claims 2-14, 24 and 26-27 depend on claim 1 and dependent claims 16, 18, 19, 25, 28 and 29 depend on claim 15, and recite further limitations therefrom. Hence, these claims are presently patentable. Applicants reserve the right to support further the patentability of these claims, should that become necessary.

New independent claim 30 is directed to a fuel cell system that has a fuel cell with a polymer electrolyte membrane (PEM), which converts fuel to electricity (for support see specification from page 1, line 31 to page 3, line 7), and an ion filter. Furthermore, the filter medium of the ion filter is made from “a material substantially the same as the polymer electrolyte membrane of the fuel cell ... and removes metal ions from the fuel cell fuel.” (for support see specification 9, lines 2-4).

The Derflinger reference does not disclose an ion removing filter that has a medium which is substantially the same as the PEM in the fuel cell. Derflinger discloses a fuel cell unit (1), a ion exchanger unit or coarse filter (3) and a filter or fine filter (4), but does not disclose that the filter medium of unit (3) or (4) should be made from the same material as the PEM or electrolyte of fuel cell (1). The Paronen reference does not remedy this deficiency. Hence, new independent claim 30 is patentable over the Derflinger and Paronen references, either singly or in combination. New dependent claim 31 and 32 depend on claim 30 and recite further limitations therefrom and are therefore presently patentable.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. No new matter has been added. Applicants therefore respectfully request that

the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

A total of 27 claims and 3 independent claims remain in this application. Applicants have previously paid for 25 total claims and 3 independent claims. Hence, a fee of \$100 is due for the two extra claims. Additionally, a fee of \$790 is also due for the attached Request for Continued Examination. Applicants also believe that no fees or petitions for extensions of time are due in connection with the submission of this Response. If any extension of time is required, it is hereby petitioned for under 37 C.F.R. § 1.136, and if any other required fee is due, the Commissioner may charge appropriate fees to H.T. Than Law Group, Deposit Account No. 50-1980.

Prompt and favorable consideration of this Amendment and Request for Continued Examination is respectfully requested.

Respectfully submitted,

Date: September 14, 2006

/H.T. Than/

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Attachments:

Request for Continued Examination Transmittal Form (SB-30)  
Fee Transmittal